

REMARKS

Claims 1 and 3-13 are pending in the application and stand rejected. Reconsideration and allowance of Claims 1 and 3-13 in view of the above amendments and following remarks is respectfully requested.

Entry of the Amendment

Entry of the amendment is respectfully requested. The amendments to the claims have been made to clarify the invention. The amendments do not add new subject matter, do not require the Examiner to further search the invention, and are believed to place the application in condition for allowance.

Examiner Interview

Applicants acknowledge with appreciation the Examiner's helpful comments made during a telephone interview conducted on March 11, 2008, between the Examiner and applicants' attorney, George Renzoni. Independent Claims 1 (fibers) and 5 (method for making the fibers) were discussed in view of U.S. Patent No. 5,549,791, issued to Herron et al., and U.S. Patent No. 5,562,740, issued to Cook et al., both of record, and U.S. Patent No. 5,637,193, issued to Hassi et al., a reference recently identified by the Examiner.

The Rejection of Claims 1 and 3-13 Under 35 U.S.C. § 112, Second Paragraph

Claims 1 and 3-13 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

The Examiner states that it is unclear whether the fibers have been treated with a bleaching agent prior to, during, or after crosslinking. Claims 1 and 10 have been amended to recite that the polyacrylic acid crosslinked fibers are subsequently treated with a bleaching agent. Claim 5 recites "spraying a bleaching agent into an airstream containing polyacrylic acid crosslinked fibers." Applicants submit that it is clear from the presently pending claims that the polyacrylic acid crosslinked cellulosic fibers are treated with a bleaching agent, that is, treatment

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of the fibers with a bleaching agent after the fibers have been crosslinked. Applicants note that this meaning is consistent with the specification and with Claim 5, directed to the method for making bleached polyacrylic acid crosslinked fibers, which recites that a bleaching agent is sprayed into an airstream containing the crosslinked fibers.

Regarding the Whiteness Index recitation in Claims 1, 5, and 10, the Examiner has stated that it is not clear when the initial Whiteness Index determination is made. Claims 1, 5, and 10 have been amended to recite that the first Whiteness Index value is "determined at least one day after treatment with the bleaching agent." Support for the amendment can be found in the specification as originally filed. See for example, page 11, lines 11-12.

The Rejection of Claims 1, 3, and 10-13 Under 35 U.S.C. §§ 102(b)/103(a)

Claims 1, 3, and 10-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious in view of U.S. Patent No. 5,549,791, issued to Herron et al. Withdrawal of the rejection is requested for the following reasons.

Claims 1 and 10 are the rejected independent claims. Claim 3 depends from Claim 1 and Claims 12 and 13 depend from Claim 10. As amended, each of Claims 1 and 10 recites that the bleached polyacrylic acid crosslinked fibers have a Whiteness Index that increases from a first value determined at least one day after treatment with the bleaching agent to a second value determined up to 14 days after treatment. The Herron reference does not describe bleached polyacrylic acid crosslinked fibers having a Whiteness Index that increases from an initial value after treatment to a second value determined up to 14 days after treatment with a bleaching agent, as in the claimed invention.

Therefore, because the cited reference fails to exactly describe the claimed invention, the reference is not anticipatory. Withdrawal of the Section 102 rejection is respectfully requested.

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Furthermore, the cited reference fails to teach, suggest, or otherwise render obvious the claimed invention.

The Hassi reference. In support for the Section 102/103 rejections, the Examiner has noted U.S. Patent No. 5,637,193, Hassi et al., Bleaching and Coating a Paper Web with Peroxide and Starch. Unlike the Herron reference (and the Cook reference), the Hassi reference provides whiteness data for a treated paper.

The Hassi reference provides whiteness data for "once-sized wood-free base paper" webs that have been further surface sized by treatment with a mixture of starch and peroxide (see Tables 1, 4, 5, and 6). In these tables, the Hassi reference indicates that whiteness increase over time (e.g., from immediately after treatment up to 6, 20, 21, or 28 days post-treatment). We understand that the Examiner refers to the Hassi reference as supporting the position that, on bleaching, fiber whiteness increases over time. In view of the Hassi reference teaching, applicants understand the Examiner's position to be that any fiber that is bleached (e.g., the polyacrylic acid crosslinked fibers described in the Herron reference, or the citric acid crosslinked fibers described in the Cook reference) will exhibit whiteness increase over time as do the presently claimed fibers. Applicants respectfully disagree for the following reasons.

Applicants submit that the Hassi reference relates not at all to a method for increasing fiber whiteness by bleaching the fiber, but rather relates to bleaching the starch applied to a web of fibers.

The Hassi reference describes a method for bleaching and coating a paper web with peroxide and starch. In the method, a mixture of peroxide and starch is introduced onto a surface of a moving once-sized paper web for the purpose of further surface treating the web. The starch is introduced onto the surface of the web to coat the surface and to bond the paper's fibers. See Abstract and Claim 1. However, the Hassi reference evidences that the peroxide is actually

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bleaching the starch that is introduced onto the paper web and does not describe bleaching the fibers of the web.

The reference describes a surface treatment mixture that includes starch, hydrogen peroxide, and water. See Col. 2, line 65 - Col. 3, line 2. The method is exemplified by applying the surface treatment mixture to a "once surface-sized wood-free base paper (KymArt)." See Col. 3. lines 3-4. Table 1 shows that application of the starch/peroxide mixture to the surface-sized paper web results an increase of whiteness over time (from immediately after application to 21 days after application).

Table 2 evidences the degradation of starch in starch/peroxide mixtures over time (from immediately to 23 hours after combination of the two components of the surface treatment mixture).

Table 4 summarizes the properties of surface sizing a once surface-sized paper web with the starch/peroxide surface treatment by blade coating. Table 4 evidences that the once surface-sized paper web to which the starch was to be applied was whiter than the resulting paper web to which the starch was applied (i.e., application of starch to the paper web decreased the whiteness of the paper web). See Col. 4, line 52 - Col. 5, line 18. The once-sized wood-free KymArt base paper had an initial whiteness of 82.3%. See Col. 4, line 62. The whiteness of the once-surface sized paper had a whiteness of 81.6% immediately after being surface coated with starch. See Table 4, Exp. 1. The whiteness of the paper surface sized with starch alone increased to 82.1 after 28 days. See Table 4, Exp. 1. The whiteness of the paper surface sized with the starch/peroxide mixture also increased over time, the increase being greatest for mixtures having higher peroxide concentrations. See Table 4, Exp. 2-9.

The conclusion reached from the teaching of the Hassi reference is that surface sizing a once-sized paper web with starch/peroxide does increase the whiteness of the paper web, but that

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the whiteness increase is not due to bleaching the web's fibers. Rather, the increase of the paper web is due to whitening of the starch applied to the paper web.

This conclusion is further supported by nature of the paper web used in the method described in the Hassi reference. The reference describes surface sizing a "once surface-sized wood-free KymArt base paper" web with starch/peroxide surface sizing mixtures. Thus, the reference describes further surface sizing a surface-sized paper.

To assist the Examiner in understanding surface sizing in connection with papermaking, Applicants have included **Exhibit A**, pages 1104-1111 from Chapter XIV: Surface Sizing from *Pulp and Paper, Chemical and Chemical Technology, Volume II: Papermaking*, James P. Casey, Second Edition, Interscience Publishers, Inc., New York. A surface-sized paper is a paper that has had its surface coated with a sizing agent (e.g., starch). In the surface sizing process, a sizing agent is applied to the surface of a paper where it cements the fibers to the body of the paper and deposits a continuous film on the paper surface. The advantage of surface sizing is that a smooth hard film is produced on the surface of the paper, sealing the surface pores of the paper. See page 1104, Exhibit A.

Applicants submit that the "once surface-sized wood-free base paper (KymArt)," having a surface film that seals the paper's pores, is resistant to bleaching when a starch/peroxide surface sizing mixture is applied. This is evidenced by the data in the Hassi reference. By virtue of the fact that, in the Hassi reference, the paper to which the starch/peroxide mixture is applied is a sized paper, applicants submit that the peroxide in the applied mixture is not bleaching the paper's fibers, which are protected from the "second" sizing mixture (starch/peroxide) by a film on the paper surface resulting from its first sizing (once surface-sized paper).

From the experimental data set forth in the Hassi reference and the understanding of surface sizing from Exhibit A, applicants conclude that the Hassi reference does not teach or

suggest that fibers in a surface-sized paper web can be treated with a bleaching agent to provide bleached fibers and that those fibers have a whiteness that increases over time.

For the above reasons, applicants respectfully submit that the Herron reference, even in view of the Hassi reference, fails to teach, suggest, or provide any motivation to make the claimed invention. Because the claimed invention is nonobvious and patentable over the cited reference, withdrawal of the rejection is respectfully requested.

The Rejection of Claims 1 and 3-13 Under 35 U.S.C. § 103(a)

Claims 1 and 3-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,562,740, issued to Cook et al., in view of U.S. Patent No. 5,549,791, issued to Herron et al. Withdrawal of the rejection is requested for the following reasons.

The Cook reference fails to teach or suggest the fibers of the claimed invention having a Whiteness Index that increases from a first value determined at least one day after treatment with the bleaching agent to a second value determined up to 14 days after treatment with the bleaching agent, as recited in independent Claims 1, 5, and 10.

Just as the Herron reference (in view of the Hassi reference) fails to teach or suggest the claimed invention, the Cook reference, either alone or in combination with the Herron reference and/or the Hassi reference, fails to teach, suggest, or provide any motivation to make the claimed invention.

Because the cited references, either alone or in any combination, fail to teach, suggest, provide any motivation to make, or otherwise render obvious the claimed invention, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

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CONCLUSION

In view of the foregoing remarks, applicants believe that Claims 1 and 3-13 are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at 206.695.1755.

Respectfully submitted,

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